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(71) Applicant: FUJI HEAVY IND LTD

(72) Inventor: NAMEKI SHOICHI

(74) Representative:

**(54) FUEL INJECTION
TIMING CONTROL DEVICE
OF LEAN-BURN ENGINE**

(57) Abstract:

PROBLEM TO BE SOLVED: To prevent torque fluctuation shocks and misfires by switching fuel injection timing in synchronism with switching of a variable intake valve which produces a vortex inside a combustion chamber, in a device wherein the operating mode is switched between the lean-burn

operating mode and the stoichiometric operating mode when the variable intake valve is closed.

SOLUTION: An intake manifold 3 is divided into two passages by a partition wall, and one of the passages is closed by a variable intake valve 20 to produce a tumbling flow inside a combustion chamber. Combustion efficiency is thereby enhanced and lean-burn operation is made possible. The closure of the variable intake valve 20 is effected if such requirements that engine speed be not more than a predetermined value, that engine load be not more than a predetermined value, and that throttle opening be not more than a predetermined value are met. If injection timing differs between before and after the variable intake valve 20 is switched between open and closed positions, fuel injection timing is gradually varied from the injection timing before the switching to that after the switching, thereby preventing torque fluctuation shocks.

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